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Southern Nuclear Operating Company
Vogtle Electric Generating Plant Unit 3
Resubmittal of ITAAC Closure Notification on Completion of ITAAC 2.5.02.14
[Index Number 553]

Ladies and Gentlemen:

In accordance with 10 CFR 52.99(c)(1), this letter is to notify the Nuclear Regulatory Commission (NRC) of the completion of Vogtle Electric Generating Plant (VEGP) Unit 3 Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Item 2.5.02.14 [Index Number 553] for verifying the Component Interface Module (CIM) is developed using a planned design process which provides for specific design documentation and reviews. The closure process for this ITAAC is based on the guidance described in NEI 08-01, "Industry Guideline for the ITAAC Closure Process under 10 CFR Part 52," which was endorsed by the NRC in Regulatory Guide 1.215.

Southern Nuclear Operating Company (SNC) previously submitted ITAAC Closure Notification on Completion of VEGP Unit 3 ITAAC 2.5.02.14 [Index Number 553], ND-16-2835 [ML17004A046], dated December 30, 2016. This resubmittal provides additional details requested by the staff during public meetings and supersedes ND-16-2835 in its entirety.

This letter contains no new NRC regulatory commitments. SNC requests NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact David Woods at 706-848-6903.

Respectfully submitted,

Michael J. Yox
Regulatory Affairs Director Vogtle 3&4

Enclosure: Vogtle Electric Generating Plant (VEGP) Unit 3
Completion of ITAAC 2.5.02.14 [Index Number 553]

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Southern Nuclear Operating Company
ND-17-0823
Enclosure

Vogtle Electric Generating Plant (VEGP) Unit 3
Completion of ITAAC 2.5.02.14 [Index Number 553]

ITAAC Statement

Design Commitment:

14. The Component Interface Module (CIM) is developed using a planned design process which provides for specific design documentation and reviews.

{Design Acceptance Criteria}

Inspections, Tests, Analyses:

An inspection and or an audit will be performed of the processes used to design the hardware, development software, qualification and testing.

Acceptance Criteria:

A report exists and concludes that CIM meets the below listed life cycle stages.

Life cycle stages:

a. Design requirements phase, may be referred to as conceptual or project definition phase
b. System definition phase
c. Hardware and software development phase, consisting of hardware and software design and implementation
d. System integration and test phase
e. Installation phase

ITAAC Determination Basis

An inspection was performed of the processes used to design, develop, qualify, and test the Component Interface Module (CIM) and the implementing documents to demonstrate that the CIM meets the below listed life cycle stages.

a. Design requirements phase, may be referred to as conceptual or project definition phase
b. System definition phase
c. Hardware and software development phase, consisting of hardware and software design and implementation
d. System integration and test phase
e. Installation phase

The methodology used to develop the CIM life cycle process is based on Institute of Electrical and Electronics Engineers (IEEE) Standard 1074-1995 (as endorsed by Regulatory Guide 1.173, Revision 0, "Developing Software Life Cycle Processes for Digital Computer Software Used In Safety Systems of Nuclear Power Plants"). The CIM life cycle process defines the required plans / procedures needed to develop CIM and inputs and outputs of each phase of development (i.e., life cycle stages).

The life cycle processes were applied to the Component Interface Module (CIM / Field Programmable Gate Array (FPGA) based), the Safety Remote Node Controller (SRNC / FPGA based) and associated hardware (e.g., Transition Panels) since they are an integral part of the CIM.

Attachment A provides a summary of each phase, the processes used and key outputs resulting from each phase.

During the planning / project definition phase, process plans were developed for each stage of the life cycle, including an Independent Verification and Validation (IV&V) plan using IEEE Standard 1012-1998. At each phase of the project, an inspection was performed of the applicable phase outputs per the CIM-SRNC IV&V plan to verify that the requirements of each phase have been met. At the completion of CIM development, an IV&V Summary Report was issued showing that CIM-SRNC was developed using the approved processes.

CIM qualification was performed in accordance with the methods described in the VEGP Units 3&4 Updated Safety Analysis Report, Appendix 3D, "Methodology for Qualifying AP1000 Safety-Related Electrical and Mechanical Equipment" (Reference 2). Review of equipment qualification documentation concluded that the qualification was completed per the AP1000 Equipment Qualification Methodology as documented in Reference 1.

The results of inspection are documented in ITAAC 2.5.02.14: Component Interface Module Design Process Technical Report (Reference 1) and conclude that CIM meets the following life cycle stages.

a. Design requirements phase, may be referred to as conceptual or project definition phase
b. System definition phase
c. Hardware and software development phase, consisting of hardware and software design and implementation
d. System integration and test phase
e. Installation phase testing

ITAAC Finding Review

In accordance with plant procedures for ITAAC completion, Southern Nuclear Operating Company (SNC) performed a review of all ITAAC findings pertaining to the subject ITAAC and associated corrective actions. This review found that there were four closed Notices of Nonconformance (NONs) associated with this ITAAC:

1. Notice of Nonconformance 99900404/2014-201-01
2. Notice of Nonconformance 99900404/2014-201-02
3. Notice of Nonconformance 99901404/2011-201-04
4. Notice of Nonconformance 99901404/2011-201-05

The corrective actions for the ITAAC Findings are completed and the Findings are closed. There are no other relevant ITAAC findings associated with this ITAAC. The ITAAC completion review is documented in the Vogtle Unit 3 ITAAC Completion Package for ITAAC 2.5.02.14 (Reference 3) and available for NRC review.

ITAAC Completion Statement

Based on the above information, SNC hereby notifies the NRC that ITAAC 2.5.02.14 was performed for VEGP Unit 3 and that the prescribed acceptance criteria are met.

Systems, structures, and components verified as part of this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

References (available for NRC inspection)

1. APP-GW-GLR-611, Rev. 3, "ITAAC 2.5.02.14: Component Interface Module Design Process Technical Report"
2. Updated Final Safety Analysis Report, Appendix 3D, "Methodology for Qualifying AP1000 Safety-Related Electrical and Mechanical Equipment"
3. SVP_SV0_004599, Attachment 1, "Submittal of Inspections, Tests, Analyses and Acceptance Criteria (ITAAC) Completion Package for Unit 3 ITAAC 2.5.02.14 [COL Index Number 553] (CIM Life Cycle Audit)"

Attachment A

CIM Life Cycle Process

Acceptance Criteria	Phase Description	Process Followed	Phase Result
a. Design requirements phase	During the concept portion of the design requirements phase, the project requirements of the CIM subsystem (CIM and Safety Remote Node Controller [SRNC]) are developed	Strategy and Concept Exploration: - Defining overall project strategy, schedule, milestones, assurance requirements and verification strategy - Exploring conceptual approaches to new CIM/SRNC design. Considerations include budgetary data and life cycle constraints and benefits Design Reviews: - Reviewing and providing feedback on project requirements documents	- CIM-SRNC Development Project Plan - SRNC Requirements Specification - CIM Logic Specification - CIM Hardware Requirements Specification Acronyms: CIM: Component Interface Module SRNC: Safety Remote Node Controller
	During the planning portion of the design requirements phase, planning documents created	CIM-SRNC Project Plan: - Establishes a high-level description of project, identifies key personnel and project deliverables, identifies Standards and regulatory requirements, and establishes controls for supplier control and software development CIM-SRNC Requirements Specifications: - Identifies hardware and functional requirements for the CIM and SRNC CIM Logic Specification: - Identifies the functional logic requirements for the CIM	- CIM-SRNC Software Program Manual - CIM-SRNC Management Plan - CIM-SRNC Quality Assurance Plan - CIM-SRNC Independent Verification and Validation (IV&V) Plan - CIM-SRNC Configuration Management Plan - CIM-SRNC Test Plan - CIM-SRNC Field Programmable Gate Array (FPGA) Development Plan

Acceptance Criteria	Phase Description	Process Followed	Phase Result
b. System definition phase	During the system definition phase, the software and hardware requirements are developed	CIM-SRNC FPGA Development Plan: - Guides the development and documentation of software requirements CIM-SRNC FPGA Development Procedure: - FPGA requirements are derived from higher-level requirements CIM-SRNC IV&V Plan: - Independently reviews software requirements documents by the IV&V team	- CIM and SRNC FPGA Requirements Specifications - CIM and SRNC Requirements Traceability Matrices - CIM-SRNC Software Hazards Analysis Report - CIM and SRNC Reliability Analyses - CIM-SRNC IV&V Phase Summary Report
c. Hardware and software development phase	During the design portion of the hardware and software development phase, the software and hardware design documentation describing architecture and interface is generated	CIM-SRNC FPGA Development Plan: - Controls the design of the CIM and SRNC software CIM-SRNC Configuration Management Plan: - Guides the production of CIM and SRNC FPGA designs and design documents CIM-SRNC IV&V Plan: - Describes the techniques, procedures, and methodologies used to provide IV&V for the CIM-SRNC development	- CIM and SRNC FPGA Software Design Descriptions - CIM-SRNC IV&V Phase Summary Report
	During the implementation portion of the hardware and software development phase, software is developed and hardware is manufactured	CIM-SRNC Design Tools: - Describes the tools approved for use in developing the software designs CIM-SRNC Test Plan: - Controls the process of verifying the CIM and SRNC designs meet functional requirements CIM-SRNC Management Plan: - Guides the production of CIM and SRNC hardware designs and design documents CIM-SRNC IV&V Plan: - Describes the techniques, procedures, and methodologies used to provide IV&V for the CIM-SRNC development	- FPGA Code Binary Files - CIM-SRNC Software Hazard Analysis Report - CIM and SRNC Reliability Analyses - CIM-SRNC Hardware Drawings - CIM and SRNC Components

Acceptance Criteria	Phase Description	Process Followed	Phase Result
d. System integration and test phase	During the system integration phase, both the software and hardware are integrated and tested.	CIM and SRNC FPGA Build Procedures: - Controls the process of converting software into gate logic and flashing that logic to the target FPGAs CIM-SRNC Test Plan: - Controls engineering testing used to verify functionality and function requirements CIM-SRNC Subsystem Test Procedure: - Controls the validation testing of the FPGA Logic CIM-SRNC IV&V Plan: - Describes the techniques, procedures, and methodologies used to provide IV&V for the CIM-SRNC development	- CIM-SRNC IV&V Simulation Environment Test Report - CIM-SRNC Subsystem Test Report - CIM-SRNC IV&V Phase Summary Report
e. Installation phase	During the installation phase, the FPGA design are installed into the hardware and verified through production testing	FPGA Logic Loading Procedures: - Controls the installation of the FPGAs into the Printed Circuit Board Assemblies Final Acceptance Testing Procedures: - Controls the validation testing for the full CIM and SRNC assemblies CIM-SRNC IV&V Plan: - Describes the techniques, procedures, and methodologies used to provide IV&V for the CIM-SRNC development	- Manufacturing Records for chip flashing, testing, inspections, etc. - CIM-SRNC IV&V Phase Summary Report